

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte JIMING SUN

Appeal No. 2006-1616  
Application No. 09/722,996

ON BRIEF

MAILED

JUN 19 2006

U.S. PATENT AND TRADEMARK OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES

Before JERRY SMITH, BLANKENSHIP, and HOMERE, Administrative Patent Judges.

BLANKENSHIP, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 1-30, which are all the claims in the application.

We reverse.

BACKGROUND

The invention relates to a ring to be worn by a user. The ring contains a sensor unit having a plurality of sensors in a substantially circular pattern, whereby the user may activate one of the sensors such that a pointer on a display screen may be moved in a corresponding direction. Representative claim 1 is reproduced below.<sup>1</sup>

1. A pointing device for controlling a pointer displayed on a display screen, comprising:

a ring;

a sensor unit comprising a plurality of sensors in a substantially circular pattern, wherein the sensor unit is mounted on the ring, and wherein each of the plurality of sensors can be activated for positioning the pointer on the display screen; and

a controller adapted to create position information based on activation of one or more of the plurality of sensors.

The examiner relies on the following references:

|                    |                 |                                       |
|--------------------|-----------------|---------------------------------------|
| Russell            | 5,481,265       | Jan. 2, 1996                          |
| Eng et al. (Eng)   | 5,638,092       | Jun. 10, 1997                         |
| Wang et al. (Wang) | 5,832,296       | Nov. 3, 1998                          |
| Liao et al. (Liao) | US 6,570,556 B1 | May 27, 2003<br>(filed Oct. 13, 1999) |

Claims 1, 2, 5-8, 10, 11, 13-19, 21, 22, 24, 25, 27, 28, and 30 stand rejected

under 35 U.S.C. § 103 as being unpatentable over Wang and Liao.

---

<sup>1</sup> We observe that "the movement information" in claim 7 lacks proper antecedent basis in the claims.

Appeal No. 2006-1616  
Application No. 09/722,996

Claims 3, 4, and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Wang, Liao, and Eng.

Claims 9, 12, 23, 26, and 29 stand rejected under 35 U.S.C. § 103 as being unpatentable over Wang, Liao, and Russell.

We refer to the Final Rejection (mailed Nov. 2, 2004) and the Examiner's Answer (mailed Oct. 6, 2005) for a statement of the examiner's position and to the Brief (filed May 25, 2005) and the Reply Brief (filed Dec. 8, 2005) for appellant's position with respect to the claims which stand rejected.

#### OPINION

Claims 1, 13, 18, and 27 are independent. For each independent claim on appeal, the examiner's rejection offers the combination of Wang and Liao to demonstrate obviousness of the subject matter under 35 U.S.C. § 103. Wang is deemed to disclose all the features of representative claim 1, including a sensor unit having a sensor 16, in a "substantially circular pattern," mounted on a ring. However, Wang is deemed not to "expressly" disclose that sensor unit 16 comprises a plurality of sensors, wherein each sensor can be activated for positioning the sensor on the display screen. Lao is deemed to teach a pointing device to control a pointer on a display that includes a plurality of sensors 422 in a substantially circular pattern to activate positioning the pointer on the display screen. The rejection concludes that it would have been obvious to include the sensors taught by Lao to replace sensor 16 of Wang,

Appeal No. 2006-1616  
Application No. 09/722,996

"to increase the conductivity of the pointing device (col. 1, lines 54-57), as well as to provide an accurate movement of the cursor by providing a plurality of sensors."

(Answer at 3-4.)

Appellant argues, in the briefs, there is no teaching or suggestion that Wang's sensors would benefit from increased conductivity, or that the arrangement taught by Lao would affect cursor movement accuracy in the Wang device. The examiner responds in the Answer that the references show that by providing multiple sensors arranged in a circle, the sensing accuracy increases because the conductivity has increased. (Answer at 7-8.)

Wang describes a ring having a "two-dimensional force (or pressure) sensor" 16 on the outside diameter of the ring (Figs. 1 and 2). Sensor 16, preferably, is a "standard isometric two-dimensional quadrant force sensor" (Fig. 3). Col. 4, II. 20-37. Figure 3 depicts what appears to be a circular button 16, attached to four variable resistors that are in turn connected to A/D converter 40. The variable resistors appear to represent the sensing of force or pressure with respect to a quadrant, in view of the written description of Wang. The examiner has not, however, pointed out the basis for the finding that sensor 16 is in a "substantially circular pattern."

Liao describes sensors 422 (Fig. 4) arranged in a substantially circular pattern about stick 42. Col. 2, I. 51 - col. 3, I. 14. Further in view of the background of the invention discussed in columns 1 and 2, the arrangements of Figures 3 and 4 represent improvements over sensors attached onto a substrate (Figs. 2A and 2B; col. 1, II. 17-

51). Liao describes the pointing stick 42 (Fig. 4) as a further improvement over pointing stick 32 (Fig. 3), which requires four sensors and a rectangular column, resulting in a relative difficulty to manufacture. As for the state-of-art pointing stick shown in Figure 3, “[t]he sensor 322 consists of two electrodes 3222, 3223, a strain gauge 3221, and a conductor 3224, which increases the conductivity.” Col. 1, ll. 55-57.

The language in Liao regarding “conductivity” appears to refer to conductor 3224 -- i.e., the conductor increases conductivity of strain gauge 3221 or sensor 322, rather than a teaching that the sensor itself somehow increases conductivity. Perhaps more important, base reference Wang does not show or describe the physical arrangement of the sensor elements (Fig. 3) that indicate force or pressure in respective quadrants. We might speculate that the elements could be arranged on the circular surface of a cylinder (e.g., Liao Fig. 4), meeting the terms of the claims, or on the faces of a rectangular column (e.g., Liao Fig. 3), in which case Liao would be a teaching reference suggesting replacement of the rectangular column with a cylindrical column. However, rejections under § 102 or 103 cannot be based on speculation. We do not have a reference that shows, for example, the physical arrangement of a “standard isometric two-dimensional quadrant force sensor” as described by Wang.

The allocation of burdens requires that the USPTO produce the factual basis for its rejection of an application under 35 U.S.C. §§ 102 and 103. In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984) (citing In re Warner, 379 F.2d 1011, 1016, 154 USPQ 173, 177 (CCPA 1967)). The one who bears the initial burden

Appeal No. 2006-1616  
Application No. 09/722,996

of presenting a prima facie case of unpatentability is the examiner. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

We are constrained to agree with appellant that the references as applied fail to show prima facie obviousness of the subject matter of representative claim 1. Prior art references in combination do not make an invention obvious unless something in the prior art would suggest the advantage to be derived from combining their teachings. In re Sernaker, 702 F.2d 989, 995-96, 217 USPQ 1, 6-7 (Fed. Cir. 1983). Since there is no showing of an advantage that would derive from applying the teachings of Liao to Wang, as proposed, we cannot sustain the rejection of claim 1.

The references of Eng and Russell, further applied against dependent claims, do not remedy the deficiencies in the rejection against the base claims. We thus do not sustain the rejection of claims 1-30 under 35 U.S.C. § 103.

Appeal No. 2006-1616  
Application No. 09/722,996

CONCLUSION

The rejection of claims 1-30 under 35 U.S.C. § 103 is reversed.

REVERSED

*Jerry Smith*

JERRY SMITH  
Administrative Patent Judge

)

)

)

) BOARD OF PATENT  
APPEALS  
AND  
INTERFERENCES

)

)

)

*Howard B. Blankenship*

HOWARD B. BLANKENSHIP  
Administrative Patent Judge

)

)

)

*Jean R. Homere*

JEAN HOMERE  
Administrative Patent Judge

)

)

Appeal No. 2006-1616  
Application No. 09/722,996

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. BOX 2938  
MINNEAPOLIS, MN 55402